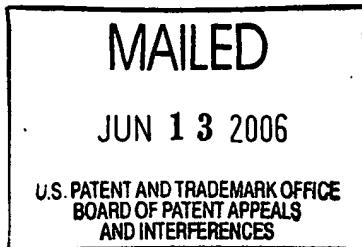


The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE



BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte XIANGXIN BI,  
RONALD J. MOSSO,  
SHIVKUMAR CHIRUVOLU,  
SUJEET KUMAR,  
JAMES T. GARDNER,  
SEUNG M. LIM,  
and  
WILLIAM E. MCGOVERN

Appeal No. 2006-0289  
Application No. 09/715,935

ON BRIEF

Before GARRIS, DELMENDO, and FRANKLIN, Administrative Patent Judges.

DELMENDO, Administrative Patent Judge.

DECISION ON REHEARING

This is a decision on a request for rehearing pursuant to 37 CFR § 41.52(a)(i)(2005) (effective September 13, 2004), filed on April 14, 2006, of our February 17, 2006 decision. Ex parte Bi, Appeal No. 2006-0289 (February 17, 2006) (hereinafter "original decision").

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We have reconsidered our original decision in light of the appellants' arguments in the request. For the reasons stated below, we are not persuaded that we misapprehended or overlooked any point made in the appellants' briefs to justify a different outcome in this appeal. Accordingly, the appellants' request for a modification of our original decision is denied.

#### Untimely Request for Oral Hearing

As a preliminary matter, we note that the request for rehearing includes an untimely request for an oral hearing "[d]ue to the complexity of the issues." (Request for rehearing at 1.) Because the appellants have not complied with the requirements of 37 CFR § 41.47(b) (2006) (September 13, 2004), the request for an oral hearing is inappropriate at this juncture and is therefore denied.

#### The Original Decision

In our original decision, we affirmed in part the examiner's decision to reject the appealed claims. (Original decision at 4-29.) Specifically, we affirmed the examiner's rejections under 35 U.S.C. § 103(a) of:

A. claims 18 through 26, 28, 29, 33 through 41, 44, 46

through 51, 56, 57, and 59 through 61 as unpatentable over the combined teachings of United States patent 6,280,802 B1 issued to Akedo et al. (Akedo) on August 28, 2001, United States patent 5,958,348 issued to Bi et al. (Bi) on September 28, 1999, and United States patent 5,874,134 issued to Rao et al. (Rao) on February 23, 1999;

- B. claims 30, 43, 45, 52, and 58 as unpatentable over the combined teachings of United States patent 6,097,144 issued to Lehman on August 1, 2000, Akedo, Bi, Rao, and PCT application WO 99/23189 in the name of Kambe et al. (Kambe) published on May 14, 1999;
- C. claims 18 through 26, 28, 29, 33 through 41, 43 through 52, and 56 through 61 as unpatentable over the combined teachings of Akedo, Kambe, and Rao;
- D. claim 30 as unpatentable over the combined teachings of Lehman, Akedo, Kambe, and Rao;
- E. claims 31 and 32 as unpatentable over the combined teachings of United States patent 6,074,888 issued to Tran et al. (Tran) on June 13, 2000, Lehman, Akedo, Bi, Rao, and Kambe;
- F. claims 31 and 32 as unpatentable over the combined

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teachings of Tran, Lehman, Akedo, Kambe, and Rao;

G. claims 18 through 26, 28, 29, 33 through 42, 47 through 51, 53, 54, 56, 57, and 59 through 61 as unpatentable over the combined teachings of United States patent 6,032,871 issued to Borner et al.

(Borner) on March 7, 2000, Bi, and Rao; and

H. claims 42 through 54 as unpatentable over the combined teachings of Borner, Akedo, Bi, and Rao.

We reversed, however, the examiner's rejections under 35 U.S.C. § 103(a) of:

claims 27 and 42 as unpatentable over the combined teachings of Akedo, Bi, and Rao;

claim 27 as unpatentable over the combined teachings of Borner, Bi, and Rao; and

claims 18 through 22, 26 through 29, 33 through 42, 44, 46 through 51, 53, and 54 as unpatentable over the combined teachings of Bi and United States patent 4,011,067 issued to Carey, Jr. on March 8, 1977. These reversed rejections are not at issue in this rehearing.

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Revised Grouping of Claims

In their request for rehearing, the appellants "withdraw their request for separate consideration of claim groups 4 [claims 31 and 32] and 5 [claims 34, 39-41, 50-52, 55, 56, and 58-61]," as identified on page 6 of the appeal brief filed on March 24, 2005, and state that these claims "can be considered along with claim group 1 [claims 18-21, 23, 25, 28-30, 43, and 44]." (Request for rehearing at 3.) Thus, the appellants propose that the appealed claims should be grouped as follows:

1. Claims 18-21, 23, 25, 28-32, 34, 39-41, 43, 44, 50-52, 55, 56, and 58-61;
2. Claims 22, 24, 26, 33, 35-38, 45-49, and 57; and
3. Claims 42, 53, and 54.

As noted by the appellants (request for rehearing at 6), all rejections involving claim 27 have been reversed. (Original decision at 13-14, 20, and 26-28.) Accordingly, claim 27 is not at issue in this rehearing.

THE APPELLANTS' ARGUMENTS

A. Rejection A: Akedo, Bi, & Rao

1. Claims 18-21, 23, 25, 28, 29, 34, 39-41, 44, 50, 51, 56, & 59-61

Claim 18 is representative of claims 18-21, 23, 25, 28, 29, 34, 39-41, 44, 50, 51, 56, and 59-61. (Original decision at 6.)

The appellants contend that our discussion on the claim interpretation of appealed claim 18 "is not completely clear." (Request for rehearing at 4.) Specifically, it appears to be the appellants' position that our claim interpretation is unreasonable because "the claim language clearly requires that the coating being [sic] formed from particles in a flow without collecting the particles." (Id. at 4-5.)

We find no merit in the appellants' contentions. In our original decision, we started our analysis as to the scope of appealed claim 18 by pointing out that the claim reads on an embodiment in which the nanoparticle production and the coating are performed in two separate chambers and that this claim construction was consistent with the description found in the appellants' specification. (Original decision at 9.) The appellants admit as much. (Request for rehearing at 5.<sup>1</sup>) We

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<sup>1</sup> The appellants state (request for rehearing at 5):  
"Claims directed to particle production in a coating chamber are

then noted that the appellants did not direct us to "any acceptable reasoning on why the particles produced according to Bi's method, at atmospheric pressure or otherwise, cannot be used as a starting material in Akedo's aerosolizing chamber 21 prior to performing Akedo's coating process." (Original decision at 10.) In particular, we directed the appellants' attention to the examiner's determination (answer at 4-5 and 15) that one of ordinary skill in the art would have found it obvious to arrive at a method in which Bi's apparatus provides the nanoparticle input of Akedo's apparatus. (Original decision at 7 and 11.) We held (id. at 11):

We share the examiner's view that diverting the nanoparticles output of Bi (and Kambe) to facilitate the supply of Akedo's starting material(s) would have required nothing more than ordinary skill because Akedo teaches the necessary conditions. That is, after diverting the nanoparticles from the outputs of Bi (and Kambe), the state of the flow of nanoparticles can be routinely adjusted to match the expressly disclosed requirements of Akedo.

Also, in response to the appellants' allegation that the "extra manipulations of the particle [in Akedo] may or may not work with a reactive flow" and that the "[t]he particles in a

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being separately prosecuted in a CIP application." In the event of continued prosecution at the conclusion of this appeal, we trust that the appellants and examiner will consider whether the

reactive flow are not the same as an aerosol of preformed particles" (reply brief filed on August 16, 2005 at 5), we pointed out that "appealed claim 18 reads on a method in which reaction and coating are performed in separate chambers, wherein the process encompasses unrecited steps as well as the use of additional equipment to facilitate the combination of Bi and Akedo." (Id. at 11-12.) The appellants have not directed us to persuasive, relied upon evidence in the record that establishes we erred in this determination. Thus, the appellants' belief (request for rehearing at 5) that our conclusion of obviousness was based on "particle collection prior to coating" or interruption of nanoparticle flow in the combination of the prior art references is incorrect. In reference to additional unrecited steps or use of additional equipment, we were simply noting that appealed claim 18 did not exclude unrecited steps or additional equipment (such as an appropriate interfacing conduit pipe to connect the two chambers) that one of ordinary skill in the art may deem necessary to facilitate the diversion of the flow of Bi's nanoparticles into the input of Akedo's coating apparatus.

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appealed claims should be rejected (e.g., obviousness-type double patenting) over the CIP application.



The appellants take issue with our citation (original decision at 7, n.3) of the discussion of Bi in their specification. (Request for rehearing at 8.) Specifically, we stated: "Bi is identified in the present specification as disclosing an apparatus suitable for the appellants' claimed invention in the case where the particle production and coating operation are performed in separate chambers..." Thus, our citation of the appellants' specification served two permissible purposes: first, that nothing in the language of appealed claim 18 can be construed to exclude the use of the apparatus as described in Bi, which is clearly prior art; and second, that nothing in the language of appealed claim 18 precludes the use of a nanoparticle production chamber separate from the coating chamber. Indeed, it would be contrary to law for us to ignore the enlightenment found in the specification in our construction of appealed claim 18. In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997) ("[I]t would be unreasonable for the PTO to ignore any interpretive guidance afforded by the applicant's written description...").

The appellants argue (request for rehearing at 8):

As noted by the Board and as widely known, cited references must be viewed as a whole. Yet, the Board and previously the Examiner recite for support of

motivation the statement in Bi that the Bi apparatus "makes efficient use of resources at high production capacity without sacrificing quality of the particles." The Bi apparatus has a significantly elongated reactant inlet. From the discussion of Bi, it is clear that it is these features of the Bi apparatus that provide for the efficient use of resources at a high production capacity. Yet this context has been ignored by the Board and the Examiner. This sentence quoted from Bi is only directed toward ways of producing and collecting particles and has nothing to do with the subject matter of Akedo or Applicants' claimed invention. Ignoring this context is a clear error of law and error of fact.

This argument is also unpersuasive. The appellants do not direct us to any relied upon evidence in the record (e.g., declaration evidence) to establish that one of ordinary skill in the art would have expected that when Bi's apparatus is connected to Akedo's apparatus, "high production capacity without sacrificing quality of the particles" would not be obtained. The appellants are correct in pointing out that Bi teaches the use of a collection system (column 9, line 58 to column 10, line 19). However, they fail to identify any relied upon evidence that establishes that one of ordinary skill in the art would not have been capable of interfacing Bi's reaction apparatus to Akedo's input, taking into account well known engineering principles, such as fluid mechanics. For example, we are not directed to any relied upon evidence or reasoning to

establish that manifold 480 or outlets 498, 496, and 494 as shown in Bi's Figure 7, and as further described at column 10, line 64 to column 11, line 16, cannot be connected to Akedo's apparatus. With respect to the "elongated reactant inlet," we find nothing in appealed claim 18 precluding such an inlet.

Relying on Bi's disclosure at column 5, lines 15-27, the appellants urge that Bi teaches away from its combination with Akedo. (Request for rehearing at 9.) This argument was not fairly raised in the briefs and is therefore not appropriate in this rehearing. 37 CFR § 41.52(a).<sup>2</sup>

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<sup>2</sup> Even if this argument had been fairly raised in the briefs, we disagree with the appellants. In the cited portion of Bi, Bi teaches the use of a shielding gas to "keep particles off of the chamber walls since the particles can result in contamination if the chamber is later used to produce different particles." (Column 5, lines 20-22.) Bi further teaches: "Since the apparatus cannot be used while being cleaned, productivity increases if particles are kept off of the surfaces within the reaction chamber 102." (Column 5, lines 24-27.) Thus, Bi is merely teaching the use of a shielding gas to improve the efficiency of the nanoparticle production process and to prevent contamination where the apparatus is used to make a different type of nanoparticle product. Nothing in this relied upon disclosure of Bi supports the notion that Bi "teaches away" from later using the final nanoparticle product for coating a substrate as in Akedo. The appellants' argument (request for rehearing at 10) that Bi's shielding gas would deflect the beams of the Akedo apparatus is merely conjecture or speculation as it is unsupported by any relied upon evidence of record.

Thus, none of the appellants' arguments establish that we misapprehended or overlooked any point in rendering our decision with respect to this ground of rejection.

2. Claims 22, 24, 26, 33, 35-38, 46-49, & 57

In our original decision, we selected claim 22 as representative. (Original decision at 12.)

The appellants argue that we erred in our original decision with respect to this ground because Bi teaches an elongated product flow, which would not "plug[] into the Akedo apparatus." (Request for rehearing at 12.) This argument is also unpersuasive. The appellants fail to identify any relied upon evidence in the record that would establish that one of ordinary skill in the art would be incapable of interfacing Bi's reaction chamber with Akedo's coating apparatus. For example, nothing in the relied upon evidence suggests that one of ordinary skill in the art would not have been able to provide an adaptive connecting device between manifold 480 or outlet 498, 496, and 494 as shown in Figure 7 with the inlet of Akedo. Contrary to the appellants' suggestion (request for rehearing at 12), we never held that "it is obvious to put a rectangular peg into a round hole."

B. Rejection B: Lehman, Akedo, Bi, Rao, & Kambe

1. Claims 30, 43, 52, & 58

In our original decision, we selected claim 43 as representative. (Original decision at 16.)

The appellants acknowledge that Kambe's teachings with respect to the silicon precursor is "combinable" with Bi and that "Lehman is cited for particular materials and is not particularly relevant to the broad issues surrounding group 1 claims." (Request for rehearing at 13.) It is the appellants' position, however, that "Kambe and Lehman do not make up for the deficiencies of Akedo, Bi and Rao with respect to claim 18."

As we discussed above, however, we agree with the examiner that one of ordinary skill in the art would have been led to combine Akedo with Bi, thus arriving at a method encompassed by appealed claim 18.

2. Claim 45

The appellants do not provide any argument other than to state that they "maintain that the claims of Group 2 are clearly not prima facie obvious over the combined teachings of Lehman, Akedo, Bi, Rao and Kambe for all of the reasons discussed in detail above." (Request for rehearing at 14.)

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Accordingly, the appellants have not established that we misapprehended or overlooked any point in rendering our original decision for the reasons stated with respect to appealed claim 18.

C. Rejection C: Akedo, Kambe, & Rao

The appellants confirm that they are relying on the same arguments for this rejection as they do for rejection A. (Request for rehearing at 14.) Accordingly, we deny the appellants' request with respect to this ground of rejection for the same reasons discussed above.

D. Rejection D: Lehman, Akedo, Kambe, & Rao

The appellants confirm that they are relying on the same arguments for this rejection as they do for rejection B. (Request for rehearing at 14.) Accordingly, we deny the appellants' request with respect to this ground of rejection for the same reasons discussed above.

E. Rejection E: Tran, Lehman, Akedo, Bi, Rao, & Kambe

The appellants rely on the same reasons as presented for rejection A. (Request for rehearing at 15.) Accordingly, we

deny the appellants' request with respect to this ground of rejection for the same reasons discussed above.

F. Rejection F: Tran, Lehman, Akedo, Kambe, & Rao

The appellants rely on the same reasons as presented for rejection E. (Request for rehearing at 15.) Accordingly, we deny the appellants' request with respect to this ground of rejection for the same reasons discussed above.

G. Rejection G: Borner, Bi, & Rao

The appellants appear to be relying on the same arguments for all the claims rejected on this ground. (Request for rehearing at 15-17.) Specifically, the appellants argue that our claim construction implied "using the apparatus of Bi to produce and collect nanoparticles for use in" Borner, which would mean that the product flow into Borner would not be continuous as required by the appealed claims. (Id. at 16.) This argument is incorrect. The premise that our claim construction was based on the notion that appealed claim 18 reads on static collection of particles is false.

The appellants contend that we "did not refute the arguments in Appellants' Brief and Reply Brief." (Request for rehearing at 17.) This, however, falls far short of showing

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that we misapprehended or overlooked any point in rendering our original decision.

H. Rejection H: Borner, Akedo, Bi, & Rao

The appellants rely on the same reasons as presented for rejection A. (Request for rehearing at 18.) Accordingly, we deny the appellants' request with respect to this ground of rejection for the same reasons discussed above.

Summary

In sum, the appellants' request for rehearing is granted to the extent of reconsidering our original decision but is denied with respect to making any substantive changes thereto.



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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

DENIED

Bradley R. Garriss

Bradley R. Garriss  
Administrative Patent Judge

*Romulo H. Delmendo*  
Romulo H. Delmendo

Romulo H. Delmendo  
Administrative Patent Judge

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Beverly A. Franklin

Beverly A. Franklin  
Administrative Patent Judge

rhd/

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PETER S. DARDI  
PATTERSON THUENTE SKAAR & CHRISTENSEN, P.A.  
4800 IDS CENTER  
80 SOUTH 8<sup>TH</sup> ST  
MINNEAPOLIS MN 55402-2100